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ON THE PRESERVATION OF ENTOMOLOGICAL CABINETS.

BY JOHN L. LECONTE, M. D.

I HAVE tried at various times many experiments for the preservation of collections of insects, but with such limited success that I did not think the results obtained worth publishing. For the sake of deterring others from pursuing these different lines of unsuccessful attempts, it would be useful, perhaps, to give a brief account of my failures before describing a process recently devised, which seems to be both simple and effective.

Corrosive sublimate and various preparations of arsenic have been recommended by several high authorities. The former, even when most diluted, will finally render the pin brittle by the amalgam developed; the latter, when used in a very weak alcoholic solution so as to leave no efflorescence on the specimens, will preserve them well, but is troublesome to apply, as the insects must be thoroughly soaked with the fluid before being placed in the cabinet. Binasenate of potassa being deliquescent, suggested itself to me as a material that might be applied in greater strength, and many years ago I prepared two boxes of specimens with it. They had a good appearance for some time, and have never been attacked, but eventually a considerable deposit or efflorescence came on the surface, so that the specimens required cleaning before they could be used for study.

Painting the interior of the boxes with arsenious acid was also only partially successful; I have seen, though not often, living larvæ of *Trogoderma* in boxes thus prepared.

Having thus failed in finding any satisfactory mineral poison I then tried the vegetable alkaloids.

I soaked specimens in moderately strong alcoholic solutions of strychnia and picrotoxia, dried them, and put them

into pill boxes with *Trogoderma* larvæ. After some weeks the specimens were partly eaten, and the larvæ transformed into perfect insects.

The effects of benzine and carbolic acid are powerful, but only temporary. The former is preferable on account of its less disagreeable odor, and may be used by pouring about a teaspoonful in each box; it must be renewed every four or five months.

Packing the collection in chests painted with coal-tar has been also recommended, and would certainly be efficient, but troublesome, and renders the collection, practically, nearly useless for study on account of the difficulty of access to the boxes. Surgical art has, however, given to us an instrument by which a poisonous liquid can be rapidly and most effectively applied to the entire surface of large numbers of specimens as they stand in the cabinet boxes, without the trouble of moving them. I refer to the *Atomizer*.

Opinions may vary as to the nature of the liquid poison to be used, but after several trials I have found the following formula to be quite satisfactory; it produces no efflorescence, even on the most highly polished species, while the odor is quite strong, and persistent enough to destroy any larvæ or eggs that may be already in the box:—

Saturated alcoholic solution of arsenious acid, eight fluid ounces; Strychnine, twelve grains; Crystallized carbolic acid, one drachm; Mineral naphtha (or heavy benzine) and strong alcohol, enough to make one quart.

I have not stated the quantity of naphtha, since there are some varieties of light petroleum in commerce which dissolve in alcohol only to a slight extent. These should not be used. The heavier oils which mix indefinitely with alcohol are the proper ones, and for the two pints of mixture ten to twelve fluid ounces of the naphtha will be sufficient.

Care should be taken to test the naphtha on a piece of paper. If it leaves a greasy stain which does not disappear after a few hours, it is not suitable for this purpose.

The best form of atomizer is the long, plated, reversible tube; it should be worked with a gum elastic pipe, having two bulbs to secure uniformity in the current. The atomizing glass tubes and the bottle which usually accompany the apparatus are unnecessary: a common narrow-necked two ounce bottle will serve perfectly to hold the fluid.

I trust that the use of the means here indicated may render the preservation of insect collections less troublesome than heretofore, and thus increase the interest of amateurs who frequently become disgusted with the science of entomology, by seeing the results of years of active and intelligent labor destroyed by a few months of inattention, or by carelessness in introducing infected specimens.



A TRUE STORY OF A PET BIRD.*

BY ROBERT RIDGEWAY.



WHILE attached, during the past year, in Nevada, to the U. S. Geological Exploration of the Fortieth Parallel, under Mr. Clarence King, I had a pet bird of the species known as the Arkansas Flycatcher (*Tyrannus verticalis*), which is closely related to the common Kingbird or Bee Martin in form, but differs in having the back olive gray, and the under parts yellow, except the throat, which is ashy. It is to be met with over the entire western portion of the United States, from the high plains west of the Missouri River to the Pacific, and in the vicinity of settlements is well known to every one.

Our pet, familiarly known to the party as "Chippy," was obtained about the middle of July, from the Indians, who had just taken it with three others, all fully fledged, from the nest. We carried it to our camp near by, and fed it with

* Communicated by the Smithsonian Institution.